TOWN OF NEEDHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
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Street Permit Procedures & Regulations
Promulgated By The Board of Selectmen
Effective April 1, 2012

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BOS voted 3/27/12

TOWN OF NEEDHAM

DEPARTMENT OF PUBLIC WORKS

STREET PERMIT PROCEDURES & REGULATIONS

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SECTION 1 GENERAL PROVISIONS

Street permit procedures are promulgated by the Department of Public Works pursuant to the authority granted under Sections 23 and 31 of the Town Charter and Section 2.2.5.1.4 of the General By-Laws.

Excavation and Trench Safety procedures are promulgated by the Department of Public Safety and the Division of Occupational Safety pursuant to authority granted by M.G.L. c. 82A. Requirements established in 520 CMR 14.00 and pursuant to section 2.2.5.4 of the General By-Laws are hereby included in this document.

The purpose of these procedures is to establish reasonable standards to protect the safety of the general public, to avoid interference with other road construction projects and to provide a uniform standard of construction for work within public ways or lands under the control of the Town.

These procedures may be revised from time to time in order to remain consistent with other State, Federal, or local Laws, regulation, or policy.

SECTION 2 DEFINITIONS

Applicant – the person who is applying for a permit or license under these procedures and the person to whom the permit or license is issued.

Competent Person - a person who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Excavator – Any entity including, but not limited to, a person, partnership, joint venture, trust, corporation, association, public utility, company or state or local government body or public agency which performs excavation operations including the excavation of trenches.

Grades Card – An index card issued by the building department that requires a signature from DPW staff confirming that all town specifications have been met in order to obtain a certificate of occupancy.

License- Written permission issued by The Needham Department of Public Works to an applicant who has been approved to do work in accordance with the Town's Street Permit procedures.

Person – any individual, group of individuals, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or political subdivision thereof to the extent subject to Town by-laws, administrative agency, public or quasipublic corporation or body, and any other legal entity, its legal representatives, agents or assigns.

Street – Entire width between the boundaries of every town owned public way or easement.

Street Permit –A permit issued by the Needham Department of Public Works to an Applicant for occupying, obstructing, or excavating within a street, easement, or public or private property.

Trench –An excavation which is narrow in relation to its length, made below the ground surface in excess of 3 feet below grade and the depth of which is, in general, greater than the width, but the width of the trench, as measured at the bottom, is no greater than 15 feet.

Trench Permit – A street permit issued to perform trench excavation work.

Work – Opening, occupying, obstructing or excavating in a public way or excavating a trench on public or private property.

Work day – a period of time between 7:00 a.m. and 5:00 p.m. occurring on a day of the week, except Saturdays, Sundays and holidays observed by the Town of Needham Department of Public Works. The hours may be modified as indicated on the permit.

SECTION 3 APPLICATION FOR LICENSES AND PERMITS

SECTION 3.1 License Requirements

No person may occupy, obstruct, excavate within a street or excavate a trench on public or private property prior to becoming licensed by the Town of Needham. Licenses may be issued by the Department of Public Works in 3-year cycles. All existing licenses will expire on December 1, 2012, and thereafter applicants must seek a renewal of their license if they intend to continue to perform work in the Town. A license renewal fee of $300 will be required for renewal. Persons seeking to renew their license shall provide a copy of their Massachusetts Hoisting License for licenses that allow for excavation in a public way or any trench on a private or public way, a completed license application form, a check in the amount of $300 payable to the Town of Needham and shall have had no outstanding violations in the previous licensing period. Examples of violations include but are not limited to, working without a street permit or trench permit, working in violation of the restrictions of street permits such as after 5 PM or on weekends, or work that does not meet town specifications. Such person upon receipt of a license commits to having a competent person on site in accordance with 520 CMR 14.00

Needham Department of Public Works shall require a signature committing the applicant to compliance with the requirements; a valid e-mail address and 24 hour phone number. A list of licensed contractors will be made available to the public via the Town of Needham website and shall be updated on an annual basis.

SECTION 3.2 Street Permit Requirements

Bond and Insurance Requirements

The holder of the permit shall be insured by an insurance carrier licensed to operate in the Commonwealth of Massachusetts. The minimum acceptable insurance amounts are as follows:

Public/General Liability		
Bodily Injury	$100,000/person	$500,000 single limit
Property Damage	$300,000/accident	$500,000 single limit

Depending on the amount, complexity and length of time that a proposed construction work is expected, the Director of Public Works may require an increase of the above minimum insurance limits prior to issuing a permit to the licensed person.

Prior to the issuance of a permit, the Applicant shall deposit, with the Town, a Surety Bond in an amount and form as shall be determined by the Director of Public Works. The amount of the Surety Bond may also be established separately for each permit so that the Town will be protected against loss in the event of the failure of the permit holder to complete the work or make required repairs or restoration of damages involving the work or encroachment authorized by the permit.

The amount of bond for Street Permits shall be computed on the basis of cost required to make proper restoration or repairs. Immediately upon approval of an application for a permit, the Director of Public Works or his designee shall advise the Applicant as to the amount of bond required. An annual blanket Surety Bond, acceptable to the Director of Public Works, may be deposited to avoid the inconvenience and expenses of obtaining individual bonds for each permit requested. The minimum annual bond amount shall be $5000.

The bond shall be released to the permit holder upon the expiration of the guarantee period. The guarantee period shall be for a period of one year following the placement of the permanent patch (except in cases of work in a road under a moratorium see Section 13). During the guarantee period, the Applicant shall be responsible for the repair and restoration of the surface.

An application for permit must be filed by a licensed person with the Town of Needham prior to any work on, in, within, under or over any Town-owned right of way, easement or land. Standard application forms for this permit may be obtained from the Department of Public Works.

An application for a Street Permit must be filed with the Department of Public Works or Board of Health prior to starting excavation of any Trench. The Applicant shall comply with the Federal Occupational Safety and Health Act, and any and all regulations promulgated by the Massachusetts Department of Public Safety pursuant to MGL c.82A and 520 CMR 14.00 (as amended) and the Town of Needham Bylaws, regulations, policies, and procedures.

Each application form shall be completely filled out and signed by the licensed person and shall be accompanied by the appropriate plans and permit fees. The completed application shall be submitted to the Department of Public Works. Applications for sub surface sewage works disposal permits are licensed under the permit issued by the Board of Health for that work under each permit issued by the Board of Health.

When applications are made for permits, complete plans and specifications must be submitted at the time of application. The plans shall be drawn at a scale of 1"=40' or greater scale, shall be drawn on the Form provided and shall contain the following minimum information.

General Information:

Address(es) of the area where work is proposed
Name, address and telephone number of the person preparing the plan
Name, address and telephone number of the Applicant
Street name(s) of the roadway(s) being affected
North arrow
Scale of the plan

Within 100 Feet of All Proposed Work:

All property lines, all utility poles and numbers, mailboxes, signs, trees and above ground utilities
All underground utilities
All driveways, intersections and limits of pavement
All fences, walls, guard rails, curbing, berms and rock outcrops
All ditches, swales and streams
All wetland and flood plain areas
All pavement markings

The plans shall show the approximate location and extent of the proposed work. For work requiring a Street Permit application, a traffic control plan or procedure shall also be submitted indicating how the public will be protected and public access continued through the work areas. Details shall include the number of uniformed police officers required by the Chief of Police, the location of barriers or barricades, lights, and warning signs. All safety devices shall comply with and be installed in accordance with the Manual on Uniform Traffic Control Devices, current edition and with the Division of Occupational Safety Requirements.

No Permit and/or license will be issued to an Applicant and work will not be allowed to commence unless the Applicant and property owner of the site are current with all town fees.

Notification requirements

The Applicant shall in accordance with the General Laws of the Commonwealth of Massachusetts give notice to public utility companies before excavation. A valid "Dig Safe" number shall be obtained for each application. The Applicant is also required to notify the Water and Sewer Division for dig safe markings of water, sewer, drain, and Highway Divison for traffic signal loops/conduit.

A twenty-four (24) hour notice to the Town Engineer or his designee prior to the start of work in the street or of a trench is required. The Street Permit may also have additional inspection notification requirements listed as part of the conditions of the permit.

Permit Completion

Upon completion of construction work related to the Street Permit, the Applicant shall notify the Department of Public Works that the work has been completed in conformance with the permit. The site will be inspected and if it is determined that all aspects of the project are properly complete, the permit will be closed out. If the construction does not meet all criteria specified in the permit regarding the completeness of the project, a notice will be issued to the Applicant outlining the incomplete items.

In the event that a Street Permit cannot be closed out during the period between April 1st and November 30th, the applicant may submit a letter requesting approval of the work contingent upon its completion in order to obtain an occupancy certificate from the Building Department. Such written request shall include at a minimum: The date which work is expected to be completed, licensed persons that will be completing the work and a current Street Permit must be obtained by the licensed person. The Department of Public Works may provide guidance in the form of a standard letter that may be submitted for this request. If the request is not approved, the applicant will receive written notification of the reasons why the request was not accepted.

SECTION 4 PERMIT AND LICENSE FEES

At the time of filing an application, all fees for the permit shall be paid by the Applicant. The fees are based on cost intended to cover the Town's administrative, technical, and inspectional review cost. The fee schedule is as follows:

Street Occupancy Permit Fee -	$100
Street Excavation Permit Fee -	$325 First 50 linear feet in Right of Way
	Plus $1 per foot additional charge in excess of 50 Feet
License Fee	$300
Trench Excavation Fee	$50
*Street Permit including Proposed Sidewalk Improvements	$100

*The town recognizes a property owners desire to improve the sidewalk areas in front of their property. Street permits that include the re-construction of a sidewalk which improves the town's infrastructure along the frontage of the homeowner's property shall have the permit fee reduced to $100. The sidewalk requirements for construction shall conform to the minimum standards required by the Town.

SECTION 5 ISSUANCE OF PERMIT

A permit may be issued after proper completion of all aspects of the application for permit, a validly held street permit license, receipt of a surety bond and certificates of insurance showing insurance coverage in the required amounts; receipt of a DIG SAFE confirmation number; confirmation of notification of Water and Sewer, identification of the competent person responsible for work conducted under the permit, and payment of fees as required in these procedures.

A permit must be signed by the Director of Public Works or his designee before it becomes valid and will include an expiration date and a list of conditions. Permits will be issued within 2 working days after the complete application has been received including any bond amounts and fees, and approval by the Director. No work may commence until the Applicant has received a signed permit.

Permits issued under these procedures are valid for a period of 30 calendar days unless stated otherwise on the permit. Work may only be performed on work days between the dates of April 1st and November 30th inclusive and between the hours of 7:00 a.m. and 5:00 p.m. Except as permitted under the Emergency Permits Section of these procedures, no work shall be conducted on other than the above specified dates and times. Permits may be extended through November 30 of the current year. In the event of the Permit holder's failure to strictly comply with these procedures or permit conditions, the permit issued shall be revoked effective immediately upon making written notification of the violation to the Applicant by hand delivery or by ordinary mail, postage prepaid, addressed to the Applicant's address as shown on the permit.

A permit holder whose permit has been revoked will be subject to a license review which may result in the revocation of his/her license.

SECTION 6 EMERGENCY PERMITS

Oral permission may be granted by the Director of Public Works or his designee to perform emergency work, such as repair of broken gas or water mains, sewer mains or drain lines, telecommunication lines, or electric service conduits. On the first working day following oral permission, the person receiving such permission shall file for a permit in the manner prescribed for non-emergency work.

SECTION 7 INDEMNIFICATION

The Applicant shall agree as a condition governing the issuance of a permit that the Applicant will indemnify and hold harmless the Town of Needham, the Director of Public Works and its agents and employees from any and all claims and action whatsoever arising from the exercises of said permit. The Applicant's signature on the permit application shall be deemed to be an acknowledgment and agreement with the above condition.

The Applicant shall agree as a condition governing the issuance of a permit that if it becomes necessary for the Town to incur legal fees or expenses to defend or enforce any of the terms or conditions of the permit, the Applicant shall reimburse the Town for any such fees and expenses reasonably incurred by the Town.

SECTION 8 PROTECTIVE MEASURES & TRAFFIC CONTROL

It shall be the responsibility of the Applicant to make certain that the security of the traveling public is safeguarded and its rights are not unreasonably curtailed. The Applicant shall place around openings, excavations, encumbrances or obstructions, such barriers, barricades, lights, warning flags, danger signs and traffic control personnel as are required by the Department of Public Works and the Police Department to protect the safety of the general public. Adequate artificial lighting devices are required to call attention to and indicate the actual location of obstructions and hazards. All barricades, warning signs, lights, temporary signals and other protective devices shall conform with the current edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" and with the Division of Occupational Safety Requirements. Traffic control devices shall be set up prior to the start of construction or maintenance operations and shall remain in place only as long as needed or required by the Department of Public Works. Advertisements, notices and signs other than for traffic control shall not be displayed on or attached to any barricade or fence in any right of way.

When the work area encroaches upon a sidewalk, walkway or crosswalk area, protective barriers, together with appropriate warning and guidance devices and signs, must be utilized so that the passageway for pedestrians is safe and well defined.

If any work requires a detour of a section of road, the Applicant shall submit at least 5-days in advance a traffic management plan to the DPW, Police, and Fire Department for review.

SECTION 9 STREET PERMIT CONSTRUCTION REQUIREMENTS

All construction shall comply with the "Standards To Be Employed by Public Utility Operators When Restoring Any of the Streets, Lanes and Highways in Municipalities" (see Attached) as promulgated by the Massachusetts Department of Telecommunications and Energy (MDTE) 98-22, and shall also comply with the following requirements:

GENERAL CONSTRUCTION

Workmanship

As the work progresses, all streets shall be kept cleaned of all rubbish, excess earth, rock and other debris resulting from such work. All material excavated from trenches, and piles adjacent to the excavated trench in any street, shall be piled and maintained in such a manner as not to endanger those working in the trench, pedestrians, or users of the street, and so that as little inconvenience as possible is caused to those using the street from adjoining properties. Whenever necessary, in order to expedite the flow of traffic or to abate the dirt or dust nuisance, the boards or bins may be required by the Town to prevent the spreading of dirt into traffic lanes. Where the confines of the area being excavated are too narrow to permit the piling of excavated material beside the trench, the Town shall have the authority to require that the Applicant haul the excavated material to a storage site and then re-haul it to the trench site at the time of backfilling.

It shall be the Applicant's responsibility to secure the necessary permission and make all necessary arrangements for all required storage and disposal sites.

Dust control shall be provided as necessary to prevent a nuisance to abutters and surrounding areas. Dust control shall be by wetting or use of calcium chloride or other approved methods.

Protection of Adjoining Properties and Facilities

The Applicant shall not interfere with any existing facility without the written consent of the Town and/or the owner of the facility. If it becomes necessary to relocate an existing facility, this shall be done by its owner. No facility owned by the Town shall be moved to

accommodate the Applicant, unless the cost of such work will be borne entirely by the Applicant. The cost of moving privately owned facilities shall be similarly borne by the Applicant unless it makes other arrangements with the person owning the facility. The Applicant shall support and protect, by the use of timbers, all piles, conduits, poles, wires or other apparatus which may in any way be necessary to support, sustain and protect them under, over, along or across said excavation works. The Applicant shall secure approval of the method of support and protection from the owner of the facility. In case any of said pipes, conduits, poles, wires, or apparatus shall be damaged, and for this purpose, pipe coating or other encasement or devices are to be considered as part of a structure, the Applicant shall promptly notify the owner thereof. All damaged facilities shall be repaired by the agency or person owning them and the expense of such repairs shall be charged to the Applicant. It is the intent of this paragraph that the Applicant shall assume all liability for damage to facilities and injury to persons. The only exception will be such instances where damage is exclusively due to the negligence of the owning company. The Town shall not be made a party to any action because of this paragraph. The Applicant shall inform himself as to the existence and location of all underground facilities and protect the same against damages.

The Applicant shall at all times, and at his own expense, preserve and protect from injury any adjoining property by providing proper foundations and lateral support, and by taking such other precautions as may be necessary for that purpose. The Applicant shall, at his own expense, shore up and protect buildings*, trees, walls, fences or other property likely to be damaged during the progress of excavation work and shall be responsible for all damage to public or private property or roadways resulting from his failure to properly protect and carry out said work. The Applicant shall not remove, even temporarily, any trees or shrubs which exist in planting strip areas, without first obtaining the consent of the Director of Public Works or his designee. (See Massachusetts General Laws, Chapter 87, Section 5 – Cutting Trees)

All unattended trenches shall be plated with steel plates or shall be completely enclosed by a chain link fence at least 6 feet in height in accordance with M.G.L c 82A and 520 CMR 14.00.

The applicant is informed that any work associated with buildings may require approval by the building inspector.

Shade Trees

Shade trees shall not be cut down, trimmed or otherwise injured. Where it is necessary to cut and remove pavement, curb, sidewalk and/or other surface improvement, the material shall be cut and removed by means of equipment suitable to the type of material to be removed and in a manner which results in a minimum amount of damage to adjacent improvements.

The following policy will be adhered to in case a tree is destroyed by the Applicant or a

tree is authorized for removal by the Director:

All tree stumps and debris resulting from the work shall be removed from the location.

A replacement shall be made by the Applicant for each tree removed or destroyed with a minimum caliper of 2 inches or greater; the species and place of relocation to be designated by the Tree Warden. It must be planted in place and it must be balled and burlapped.

The Applicant shall deliver to the Director of Public Works, a bonafide order, placed with a recognized established nursery before installing the authorized trees. The Order shall include in it a statement that the size and species required will be in accordance with "USA Standard for Nursery Stock" and that planting will be done in accordance with the applicable provisions of the Massachusetts Department of Public Works Standard Specifications.

For roadside planting, the following type trees will be acceptable, subject to approval by the Director of Public Works as to which specific species is best for the location where the tree is to be planted: Norway Maple, Sugar Maple, Crimson King Maple, European Linden or approved equal.

In certain areas of the Town, ornamental trees, such as Flowering Crab, European Mountain Ash, Japanese Flowering Cherry, Moraine Ash and Washington Hawthorne, are acceptable as replacement trees. These trees are purchased by height and not by caliper and must be balled and burlapped. They must conform to the following minimum heights: 5' to 6', Flowering Crabs and Flowering Cherries; and 6' to 8' Moraine Ash, European Mountain Ash and Washington Hawthorne.

Drainage

Provisions shall be made to provide for proper drainage during construction and the Applicant shall be responsible for all claims for damage or injury that may arise from or in connection with the work conducted under the permit. The permit holder shall exercise every reasonable precaution to prevent or minimize silting of rivers, streams, ponds, or wetland areas. This shall include the use of berms, dikes, dams, sediment basins, screened or crushed stone, gravel, mulches, grasses, waterways and other erosion control methods.

Monuments

Property or street line monuments, survey reference points and permanent survey benchmarks, shall not be removed or disturbed, unless specifically permitted in writing by the Department of Public Works.

Excavations, Backfilling, and Paving

Excavations shall be backfilled in layers not to exceed 12 inches and shall be compacted to not less than 95% maximum dry density at optimum moisture content using pneumatic

tampers, vibratory compactors or other approved means. Puddling will not be allowed. The material compaction shall be determined by the Standard Proctor Method in accordance with Standard Specifications.

If unsuitable for backfill, excavated material shall be replaced with granular backfill gravel as specified in the Massachusetts Department of Public Works Standard Construction Specifications for Streets and Highways. Within the paved roadway areas, 8 inches of gravel borrow sub base conforming to Massachusetts Standard Specification M1.03.0 Type C shall be placed followed by 4 inches of crushed gravel conforming to M2.01.7 and finally the 2 ½" binder course and 1 ½" wearing course. In sidewalk and driveway areas, six (6) inches of crushed gravel base shall be placed and compacted to achieve 95% density. Any asphalt or concrete sidewalk surface shall be restored to a depth equal to existing with three (3) inches of concrete or pavement minimum. In case of longitudinal trenches in a sidewalk area, full width restoration may be required.

In other areas, the excavation shall be restored to the condition that existed before the excavation or as directed by Department of Public Works inspectors. Any existing grassland shall be restored with four (4) inches of sifted loam which shall be fertilized and seeded.

Driveways

One or a combination of driveway locations may be allowed for a residential lot for a maximum width of 24 feet in total. Such driveway location(s) shall be at least 30' from an intersecting road. (see attachment for typical drawing detail) Water box covers shall be installed where the water service shut off is located within paved areas.

Sidewalks

Sidewalks shall meet AAB requirements and restored to a safe passable condition that meets additional specifications in this section. Sidewalk widths shall be 4'6" unless otherwise required to be wider per other permit condition, or regulation. Sidewalk widths of less than 4'-6" require approval from the DPW Director. All sidewalk surface repairs/replacements shall consist of the same materials that currently exist, unless the DPW Director approves such other material. Work on or in sidewalk areas may trigger a requirement for handicap ramp construction on corner lots. Property owners who choose to re-construct the sidewalk in front of their home may be required to construct a handicap ramp on corner lots. Water box covers shall be installed where the water service shut off is located within paved areas.

Compliance Testing

In general, where compliance to the requirements of these Regulations and their intent is in question, the Applicant, at his expense shall provide any and all proof of compliance to the Department of Public Works. Acceptable proof shall be by, but not limited to, approved independent laboratory tests, approved independent field tests, shop drawings and certificates of compliance from manufacturers. Specific tests as required by regulations and specifications shall be performed.

Other Requirements

The permit shall be kept with the foreman at the place where the work is being performed and shall be produced for examination upon request of any member or officer of the Department of Public Works or any police officer of the Town of Needham.

After an excavation is commenced, the work shall proceed in a continuous manner with diligence and expedition and shall be completed and the street restored, as nearly as possible to its original condition, so as not to obstruct the public places or travel thereon more than is reasonably necessary. The surface of the street shall be permanently restored within a period of time not to exceed five (5) days from the date of completion of the project. In any event, the Applicant shall place and maintain temporary pavement immediately upon backfilling which shall be maintained on a daily basis. Department of Public Works inspectors will require temporary "hot-patch" or "cold-patch" dependent upon the location of the opening. Upon completion of the pavement restoration, the Department of Public Works shall be immediately notified as to the location and time of completion. Permanent pavement surface shall be smooth with less than ¼" dip or bump within a 10' length.

Traffic loops at all signalized intersections must be undisturbed or replaced to original condition prior to completing construction.

Restoration

Cuts in pavement shall be parallel or perpendicular to the line of the trench. In the case of transverse or diagonal trenching, the pavement shall be sawn to provide a flat diamond shaped patch with a two (2) foot minimum overlap on undisturbed material that will permit only one wheel of a vehicle at a time to strike the patch area. Within the sawn limits of the final patch, the existing pavement and any temporary material shall be removed and replaced to an equal depth with a minimum of four (4) inches (two and a half (2 ½) inches of base and 1 ½ inches of top) of bituminous pavement laid and compacted to meet the existing pavement edge exactly. The face of all joints shall be sealed with asphalt emulsion and sanded.

In cases where multiple excavations are made in a street which would result in the edge of patches being closer than 20 feet to one another, the Department of Public Works Inspectors may require one continuous patch. (see attached typical drawing detail)

All permanent pavement markings (crosswalks, traffic center lines, etc.), shall be repainted or replaced by or under the direction of the Department of Public Works of the Town of Needham, at the expense of the Applicant.

The Director of Public Works, as a condition of the permit, reserves the right to restore the highway or cause the same to be restored under his directions and the Applicant shall reimburse the Town for any or all liability and expense suffered by reason of such work. If the final restoration is not completed in a prompt manner, Department forces will, after notice has been given to the Applicant, make final restoration which may be done after their normal working hours (overtime rate). The Applicant shall reimburse the Town for any liability and expense suffered by reason of such work.

UTILITY CONNECTIONS

All utility connections to existing water mains, sewer mains and drain lines shall conform to the following standards and specifications. Sewer, water and drain connections require separate permits and fees from the Water and Sewer Division.

Water Mains and Service Laterals

All extensions to water mains shall be made using a tapping sleeve and valve unless otherwise approved by the Water and Sewer Superintendent. The water main shall be Class 52 CLDI and shall meet Town of Needham Standard Construction Specifications.

All fittings and valves shall also meet Town of Needham Standard Construction Specifications. Poured concrete thrust blocks shall be installed at all tees, plugs and bends in the pipe. The concrete shall meet MDPW Specifications M4-02 for Cement Concrete Class C. The thrust blocks shall be poured against undisturbed original aground and shall be so placed that pipe joints will be accessible for any possible future repairs. Yokes and tie rods may be used where it is not possible to install thrust blocks or at the discretion of the Water and Sewer Superintendent. Pipe anchors shall be used when and as directed.

The pipe shall be properly bedded with clean gravel fill meeting MDPW Specification Ml.03.0 Type C. The bedding material shall be placed and compacted by hand to the top of the pipe making sure that no cavities in the bedding exist around the pipe. The pipe bedding shall then continue to one (1 ft.) foot above the pipe.

Service laterals shall be made of 1-inch copper using a 1-inch corporation meeting Town of Needham Standard Construction Specifications. The tap shall be made at either the 2 o'clock or 10 o'clock positions on the pipe and the lateral shall be bent into a gooseneck of at least 6 inches. Service laterals exceeding 1 inch in diameter shall be accompanied by a saddle attached to the water main unless otherwise instructed by the Water and Sewer Superintendent. The service lateral shall be bedded within a 1 ft. layer of sand meeting MDPW specifications M1.04.0 Type a. The curb stop shall be located within the street right of way as indicated in the Specifications.

Sewer Mains

All sewer main extensions from existing sewer mains shall be made at a sewer manhole. The manhole structure shall be pre-cast reinforced concrete meeting ASTM C478 specifications. All joints shall be properly sealed with Butyl Rubber or Neoprene Rings and Type II Portland Cement Concrete. The manholes shall have pre-cut holes with rubberized boots for all pipe connections. The manhole shall be set on a minimum 8 inch leveled and compacted base or ¾"-1½" crushed stone. Doghouse style manholes are not permitted. See Town of Needham Standard Construction Specifications for further information.

The sewer main pipe shall be installed from the low end to the high end with the bell end of the pipe at the high end. The pipe shall be SDR 35 PVC and shall meet Town of Needham Standard Specifications. The pipe shall be set in a bed of ¾"-1½" crushed stone and shall be completely surrounded by the stone to a depth of at least 8 inches.

The pipe shall be laid true to line and grade. The minimum pipe diameter used for main extensions shall be 8 inches. Larger diameters may be required as determined by the Director of Public Works. The minimum acceptable slope is 0.004 ft. /ft. Consideration shall be given to surrounding areas during the design process. The sewer main extension shall be designed to accommodate the maximum area that can be reasonably serviced as determined by the Director. Wyes and/or partials shall be installed where, in the opinion of the Director, such installation would service an unsewered potential lot.

Provision shall be made by the contractor to ensure that sewage does not surcharge in existing mains during construction. This may be accomplished by pumping with pumps capable of handling existing flows so that surcharging upstream does not occur or by fashioning a bypass pipe section to allow sewage to flow around the work area. In any event, sewage shall not be allowed to flood the excavation.

Lateral connections to the sewer main shall be made with wye connections set 45 degrees above the horizontal plane and angled in the direction of the sewage flow in the main. Wyes shall be SDR-35 PVC and shall meet Town of Needham Standard Construction Specifications. Connections to existing sewer mains other than PVC shall be made with Fernco-style saddle wyes. Such connections shall not be constructed without prior approval from the Director of Public Works.

SECTION 10 INSPECTIONS

The Town shall make such inspections as are reasonably necessary in the enforcement of these procedures. The Town shall have the authority to promulgate and cause to be enforced such procedures as may be reasonably necessary to ensure that the work conforms to the requirements herein. The issued permit may include necessary scheduled inspection requirements during the construction process. The Applicant shall contact the DPW to schedule timing of inspections during the construction process.

SECTION 11 ENFORCEMENT AND PENALTIES

Permit Procedures and Regulations. Whoever violates any provision of these procedures may be penalized by a non-criminal complaint in the District Court pursuant to provisions of Massachusetts General Laws, Chapter 40, Section 21D and upon conviction thereof, shall be fined $100 for Street Permit violations or $100 for Trench Excavation violations. Each day such violation continues shall constitute a separate offense.

If the work, or any part thereof, mentioned in the preceding sections shall be unskillfully or improperly done, the Town shall cause the same to be skillfully and properly done and shall keep an account of the expense thereof; and, in such cases, such person or utility shall pay the Town an amount equal to the whole of said expense incurred by said Town with an additional amount of 50% to cover indirect costs. The total cost is referred to herein as "recoverable charges". Thereafter, upon completion of the work and the determination of the costs thereof the Town shall issue no further permits to any person or utility until it shall receive payment of said costs.

Any person or utility who continues to violate any regulation of these procedures shall receive no further permits and is subject to license revocation until such time as the Town is satisfied that the person or utility shall comply with the terms of these Procedures and Regulations. A contractor license may be revoked or deemed non-renewable if the inspector deems their craftsmanship or performance sub standard to Needham DPW standards as determined by the Director of Public Works.

Failure to obtain a valid permit or license prior to the start of construction or activity is subject to a "cease and desist order" and may be grounds for license revocation or rejection.

SECTION 12 MORATORIUMS

Each year, and at the completion of a road construction upgrade or reconstruction project, the DPW will update a list of roads considered to be under a moratorium. The minimum period of the moratorium is for 5-years. Such list will be available at the DPW's Administration office.

Work that results in breaking through pavement, landscaping or curbing within the Right of Way of a road under a moratorium is prohibited except under special circumstances approved by the Town Engineer. In such cases where work is unavoidable the following minimum standards must be met.

1. Construction requirements specified in Section 10;
2. Curb to curb mill and overlay coverage a minimum distance of 10 feet beyond the edges of disturbance;
3. The contractor shall guarantee through a surety determined by the Department of Public Works for a period one year beyond the end of the moratorium date for that section of road.

SECTION 13 REVISIONS & SEVERABILITY

These procedures may be revised from time to time by vote of the Board of Selectmen. The invalidity of any section of these procedures shall not invalidate any other section or provision thereof, nor shall it invalidate any permit which has been previously issued.

SECTION 14 EFFECTIVE DATE

The effective date of these procedures and Regulations shall apply to all work performed on or after April 1, 2012.

Standards To Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities

D.T.E. 98-22

Section

1.0 Purpose and Scope

1.1 The purpose of these standards is to ensure that a Utility, after excavating in any municipal street, lane and highway ("public ways"), restores such street, lane and highway to the same condition in which they were found before the excavation.

1.2 Nothing in these standards may be construed to restrict the Constitutional or statutory authority of cities or towns ("Municipalities") with respect to public ways. Nothing in these standards is intended to prevent a utility and a municipality from mutually agreeing to exceptions to these standards.

1.3 Nothing in these standards is intended to be inconsistent with any ordinance or by-law and the constitution and laws of the Commonwealth.

1.4 Nothing in these standards is intended to create a contractor relationship between a Municipality and the Utilities regulated by the DTE.

1.5 Nothing in these standards is intended to be inconsistent with the Department's regulations concerning the Design, Construction, Operation, and Maintenance of Intrastate Pipelines Operating in Excess of 200 PSIG, 220 C.M.R. §§ 109.00 et seq. Inasmuch as the cover and backfill requirements in these standards are more stringent than those included in 220 C.M.R. § 109.09, these standards shall apply.
See 220 C.M.R. § 109.05(2).

1.6 The Utility is responsible for insuring compliance, for itself and its contractors, with these standards. However, Utility work may be inspected by the Municipality to assure that proper procedures are being followed. In the event a Utility fails to comply with these standards a Utility shall, at its own expense, correct such failures.

1.7 A Utility's performance in following these standards shall be considered by the Department when a Utility seeks recovery of costs related to these standards in a rate proceeding.

2.0 Definitions

AASHTO means The American Association of State Highway and Transportation Officials.

Clay means very finely textured soil which, when moist, forms a cast which can be handled freely without crumbling/breaking; that exhibits plasticity; and when dried, breaks into very hard lumps (i.e., high dry strength) and is difficult to pulverize into a soft, flour-like powder.

Cold Patch means a bituminous concrete made with slow curing asphalts and used primarily as a temporary patching material when hot mix plants are closed.

Compaction means compressing of suitable material and gravel that has been used to backfill an excavation by means of mechanical tamping to within 95% of maximum dry density as determined by the modified Proctor test in accordance with AASHTO T180.

Controlled Density Fill ("CDF"), meeting MHD Specification M4.08.0 Type 2E (flowable, excavatable), also called flowable fill means a mixture of portland cement, fly ash, sand and water. High air (25% plus) may be used instead of fly ash with an adjustment in sand content. CDF is hand-tool excavatable.

Department means the Department of Telecommunications and Energy.

Emergency Repair Work means street opening work which must be commenced immediately to correct a hazardous condition whose continuation would unreasonably risk injury, loss of life or property damage.

Gravel means coarse to very coarse-grained soil ranging from approximately 0.1 inch to 3.0 inches. Gravel exhibits no plasticity.

Infrared Process means a recycling procedure whereby an infrared heater plasticizes the surface of an asphalt pavement, preparatory to the introduction of additional compatible paving materials uniformly re-worked and compacted to achieve a density and profile consistent and thoroughly integrated with the adjacent pavement.

MHD means the Massachusetts Highway Department.

Mass. Highway Standards means the "Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges, 1988 edition."

Municipality means any Massachusetts city or town having subordinate and local powers of legislation.

Newly Paved Road means a road whose re-paving is less than five years old.

Organic Soil means soil high in organic content, usually dark (brown or black) in color. When considerable fibrous material is the principal constituent, it is generally classified as "peat." Plant remains or a woody structure may be recognized and the soil usually has a distinct odor. Organic soil may exhibit little (or a trace of) plasticity.

Permanent Patch means a final repair of street opening work to be performed in accordance with these standards and intended to permanently return the opened portion of the roadway to as good a condition as it was prior to the performance of the street opening work.

Permit means a permit granted by a Municipality to a Utility for permission to do street opening work in a public way.

Plasticity means that property of soil that allows it to be deformed or molded without crumbling (e.g., like dough or soft rubber). This property reflects the capacity of soil to absorb moisture.

Poorly Graded Soil means soil that contains a large percentage of its constituent particles within a relatively narrow range; also referred to as "uniform" soil.

Sand means coarse grained soil in which the individual grains can be visually detected. When moist it forms a cast which will crumble when lightly touched; when dry, it will not form a cast and will fall apart when confining pressure is released. Sand exhibits no plasticity.

Silt means finely-textured soil. When moist, it forms a cast which can be freely handled; when wet, it readily puddles; when dry, it may be cloddy and readily pulverizes into powder with a soft flour-like feel (i.e., low dry strength). Silt exhibits little or no plasticity.

Street Opening Work means any cutting, excavating, compacting, construction, repair or other disturbance in or under a public way together with restoration of the public way in accordance with these standards, municipal ordinances and any other applicable law following such disturbance.

Temporary Patch means the application of either cold patch or Type I bituminous concrete compacted to achieve a density equal to that of the surrounding pavement.

Utility means any corporation, city, town or other governmental subdivision, partnership or other organization or any individual engaged within the Commonwealth in any business which is, or the persons engaged in which are, in any respect made subject to the supervision or regulation by the Department of Telecommunications and Energy. For the purposes of these Standards, a Utility shall also mean any person or entity engaged by or on behalf of a Utility to perform Street Opening Work.

Well Graded Soil means soil having its constituent particles within a wide range, also referred to as "non-uniform" soil.

3.0 Permit Requirements

Each Municipality may incorporate in its permit procedures the portions of these standards that shall apply to Utility excavations within its jurisdiction. A permit may be issued with the stipulation that it may be modified or revoked with just cause at any time at the discretion of the Municipality without rendering the Municipality liable in any way. It is recognized that each Municipality shall have the authority to inspect work in progress and the Utility shall correct any deficiencies identified during said inspections. The following are the requirements that a Municipality may require of a Utility when granting Permits.

3.1 The work shall be performed in accordance with plans on file with the Municipality.

3.2 The Utility shall notify the Municipality two (2) days prior to the start of work. No work shall be authorized or proceed (except Emergency Repair Work) without said notification.

3.3 The Utility shall notify Dig Safe, in accordance with G.L. c. 82 § 40, at least 72 hours prior to the start of work for the purpose of identifying the location of underground utilities.

3.4 The Utility shall be responsible to contact the Municipality regarding the field location of any underground traffic control devices on this project.

3.5 A copy of the Permit must be on the job site at all times for inspection (except for emergency repair work). Failure to have the permit available could result in suspension of the rights granted by the Permit.

3.6 Work, day, and time constraints shall be conditions of the Permit.

3.7 If it becomes necessary to open the roadway surface in a larger area than specified in the

Permit, the Utility shall apply for an additional Permit to cover the project.

3.8 The Utility shall notify the Municipality within 14 days after completion of the physical work.

4.0 Work Standards

4.1 All work shall be in compliance with the Mass. Highway Standards as it pertains to utility street excavations and repairs unless modified by these standards.

4.2 The Utility shall be responsible for any settlement that may occur as a result of the work done in accordance with the Permit.

4.3 The Utility shall be responsible for the ponding of water that may develop within the roadway which was caused by this work.

4.4 In the event a street opening failure presents a nuisance or a public safety problem, the Utility shall respond to all trench restoration requests by the Municipality within 48 hours. Non-response within the specified time will result in the required restoration work being done by the Municipality, with all expenses to be paid by the Utility. The Utility shall reimburse the Municipality for the invoiced amount within thirty (30) days.

4.5 Failure to respond to trench restoration requests may result in denial of future Permit requests.

5.0 Safety

5.1 Provisions shall be made for the safety and protection of pedestrian traffic during the construction period.

5.2 The Utility shall be responsible to furnish and erect all required signs and traffic safety devices.

5.3 Cones and non-reflecting warning devices shall not be left in operating position on the highway when the daytime operations have ceased. If it becomes necessary for the Municipality to remove any construction warning devices or the appurtenances from the project due to negligence by the Utility, all cost for this work will be charged to the Utility.

5.4 Flashing arrow boards will be used as directed when operations occupy the roadway and shall be available for use at all times.

5.5 All signs and devices shall conform to the 1988 edition, Revision 3, or subsequent current edition, of the Manual on Uniform Traffic Control Devices (MUTCD).

5.6 Efforts shall be made to maintain normal traffic flow, but interruptions or obstructions to traffic shall be defined by conditions of the Permit.

5.7 When, in the opinion of the Municipality, the work constitutes a hazard to traffic in any area the Utility may be required to suspend operations during certain hours and to remove any equipment from the roadway.

5.8 When a snow or ice condition exists during the progress of this work, the Utility shall keep the area affected by the work safe for travel. The Municipality may restrict work during snow, sleet, or ice storms and subsequent snow removal operations.

5.9 The highway surface shall be kept clean of debris at all times and shall be thoroughly cleaned at the completion of the work.

5.10 At the completion of the work done in accordance with the Permit, all disturbed areas shall be restored to a condition equal in kind to that which existed prior to the work.

5.11 Blasting, if necessary, shall be done in accordance with state law and local ordinance.

5.12 The Utility shall supply copies of all log data and analyses collected from groundwater monitoring wells as required by state law and local ordinance.

5.13 Massachusetts Highway Department Standards for Line Clearance will conform to the National Electric Safety Code Standard Clearance for Highway Crossings.

6.0 Protection of Adjoining Facilities

6.1 If directed by the Municipality, photographs shall be taken prior to the start of work to insure restoration of designated areas to their former conditions within the limits of the work areas. Copies of the photographs shall be delivered to a place designated by the Municipality.

6.2 Care must be taken to not interfere with underground structures that exist in the area.

6.3 Care shall be exercised not to disturb any existing traffic duct systems. Any such system, if disturbed, shall be restored immediately to its original condition.

6.4 The Utility shall be responsible to replace all pavement markings in kind which have been disturbed as a result of work done in accordance with the permit. These pavement

markings shall be restored within ten (10) days after this work is performed or as deemed necessary by the Municipality.

6.5 Existing guardrail that may be removed or damaged shall be reset or replaced to Mass. Highway Standards.

6.6 The Utility will be responsible for any damage caused by its operation to curbing, structures, roadway, etc.

6.7 No trees shall be cut or removed under this Permit.

6.8 Hand digging shall be required around roots of trees.

6.9 Tree Removal

6.9.1 The Utility shall obtain written permission from the tree warden of the Municipality if it becomes necessary to remove any tree. Replacement trees must be obtained from an established nursery in accordance with "USA Standard for Nursery Stock". The trees will be replaced in size and specie as directed by said tree warden.

6.9.2 The tree stump shall be removed a minimum of six inches below the surrounding surface and all debris shall be disposed of outside the right-of-way line.

6.9.3 The tree shall be removed under the supervision of a qualified tree surgeon.

6.10 Every effort shall be made to protect bound markers. However, if it becomes necessary to remove and reset any bound marker, the Utility shall hire a registered professional land surveyor to perform this work. It shall be the responsibility of this land surveyor to submit to the Municipality a statement in writing and a plan containing his stamp and signature showing that said work has been performed.

6.13 These standards do not cover the installation of any utility poles.

7.0 Excavations

7.1 The surface of a roadway to be excavated for utility work shall be cut in reasonably straight and parallel lines using a jack hammer, saw or other accepted method to insure the least amount of damage to the roadway surface. The pavement, including reinforcing steel on concrete roadways, shall be cut the full depth of surfacing. The excavation shall only be between these lines. The cutting operation shall not be done with a backhoe, gradall or any type of ripping equipment.

7.2 Steel plates used by a Utility to protect an excavation shall be of sufficient thickness to resist bending, vibration, etc., under traffic loads and shall be anchored securely to prevent movement. If these conditions are not met, the Utility will be required to backfill and pave the excavations daily. No open trench shall be left unattended overnight.

7.3 Steel sheeting, shoring or bracing shall be driven or placed for all depths over five (5) feet. At the discretion of the Municipality, said sheeting shall be left in place and cut off two (2) feet below the surface.

7.4 When a Utility installs a service lateral to a customer an opening may be made over the common supply line to make the proper connection, but the service should be bored or driven the remainder of the way wherever possible.

7.5 Water jetting of the trench area is prohibited.

8.0 Backfill And Compaction

In restoring municipal streets, lanes and highways, Utilities may utilize approved backfill material compacted to achieve soil density values of 95% modified Proctor density (as described in AASHTO T180), which may include, as the conditions warrant, the use of Controlled Density Fill ("CDF")

8.1 If CDF is the selected option of the Utility, when backfilling excavations made for the installation or maintenance of a natural gas line, the Utility may backfill with sand and compact to a level six inches over the gas line before adding CDF to the trench.

8.2 If CDF is the selected option of the Utility, excluding the exception granted in 8.1, CDF shall flow under and around the pipe, conduit, or bedding material providing uniform support without leaving voids. CDF shall be discharged from the mixer by a reasonable means into the trench area to be filled. Filling operations shall proceed simultaneously on both sides of the pipe or conduit so that the two fills are kept at approximately the same elevation at all times. An external load shall be applied to the pipe or conduit, sufficient to hold it in place before filling.

8.3 The trench in all cases shall be filled to the bottom of the existing pavement to provide room for the pavement restoration.

8.4 CDF shall be utilized for those excavations where compaction cannot be readily accomplished with normal compaction methods (i.e. vacuum holes, utility clusters).

8.5 The following subsections provide general guidelines and criteria to determine whether a soil is suitable as backfill for Utility excavations in roadways. They prescribe proper

procedures for backfilling and compaction to achieve soil density values of 95% modified Proctor density. The ultimate objective is to obtain a finished road surface repair which will undergo settlements only within acceptable performance limits as defined within these standards for the functional life of the existing road. The guidelines are based on good engineering practice and testing of both materials and equipment.

8.6 Compliance with these standards will insure satisfactory compaction. These standards are to be used in the field when there is an absence of sieve analysis of materials, Proctor values of the soils and the corresponding inability to utilize a nuclear density gauge or sand cone field density test. The Utility shall not be required to use other accepted testing methods. However, the Municipality reserves the right, at its own expense, to utilize other accepted testing methods to verify compaction. In the event of test failure the Utility shall be responsible for re-compacting the excavation to meet the required standards.

8.7 Suitability Of Backfill Material

8.7.1 This section addresses suitability of materials to obtain an adequate level of compaction.

8.7.2 Suitable backfill material is free of stones larger than half the size of the compacted lift as provided for in Mass. Highway Standards, construction debris, trash, frozen soil and other foreign material. It consists of the following:

a. Well graded gravel and sand;
b. Poorly graded gravel and sand;
c. Gravel-sand mixtures with a small amount of silt;
d. Gravel-sand mixtures with a small amount of silt and trace amounts of clay.

8.7.3 Unsuitable backfill materials consist of the following:

a. Inorganic silts and clays;
b. Organic silts;
c. Organic soils including peat, humus, topsoil, swamp soils, mulch, and soils containing leaves, grass, branches, and other fibrous vegetable matter.

8.8 Evaluation Of Excavated Soil

8.8.1 The soil excavated from a trench shall be evaluated by trained personnel to determine whether or not it is suitable as a backfill in accordance with Subsection 8.7.

8.8.2 An excavated soil that has been evaluated as suitable for backfill shall be reused provided its moisture content has been determined to be "suitable" in accordance with Subsection 8.9.

8.8.3 An excavated soil that has been evaluated as unsuitable for backfill shall be removed from

the site and disposed of properly.

8.8.4 New material, which meets the requirements of Subsection 8.7, shall be brought in to replace excavated soil found to be unsuitable.

8.9 Proper Moisture Content for Backfill Material

Proper moisture content (i.e., ratio of moisture to mineral solid by weight in a soil) in a backfill is essential for effective compaction. Soils with too much moisture (wet) or too little moisture (dry) would not yield an adequate level of compaction. All material used as backfill shall be examined by testing a sample prior to backfilling. This requirement applies to excavated soil to be reused as backfill and to new replacement material.

8.10 Field Determination of Moisture Content

8.10.1 Trained personnel will conduct the following field test of moisture content, also referred to as a "soil ball" test.

8.10.2 The personnel conducting the soil ball test must do the following:

a: first take a handful of the particular soil from beneath the surface of a stockpile (i.e., excavated from a trench or obtained from a borrow area) and then;
b. squeeze the sample firmly making a closed fist;
c. open the hand and observe the condition of the soil ball;
d. if the soil ball is loose and crumbly, the soil is too dry for compaction;
e. if the soil ball drips water, the soil is too wet for compaction;
f. if the soil ball holds together firmly or breaks into large chunks, the soil has suitable moisture content for compaction.

8.11 Corrective Treatment When Moisture Content is Not Suitable:

a. if the soil is too dry, small amounts of water may be added by sprinkling;
b. if the soil is too wet, the soil may be dried out by spreading it out and exposing it to the atmosphere;
c. after the remedial treatment, the soil shall be tested again (Subsection 8.10.2);
d. if the corrective treatment is not effective, the soil shall be removed from the site and disposed of properly.

8.12 Backfill And Compaction Of Excavations

8.12.1 Backfill and compaction shall be performed in accordance with Subsections 8.12.2 through 8.12.6, or Subsections 8.12.7 and 8.12.8. All utility lines shall be properly bedded with materials and in depths as specified by the appropriate utility prior to backfilling to obtain compaction values of 95% modified Proctor density.

8.12.2 Compaction equipment which may be used is specified in Table A. Compactors shall be operated in approximately the vertical position.

8.12.3 Care should be exercised when compacting near a buried facility to avoid damage to the facility.

8.12.4 The bottom of the excavation shall be level, free of stones and compacted in accordance with Subsection 8.12.5 prior to commencement of backfilling.

8.12.5 Compaction shall be performed by making a minimum of four (4) passes per lift with the compactor. The passes shall start around the perimeter of the excavation and move toward the center in an inward spiral.

8.12.6 Backfill material shall be placed in lifts with the loose thickness (i.e., prior to compaction) as specified in Table A.

8.12.7 The effectiveness of any compaction method used other than that specified in this Section, including Table A, shall be determined by testing to establish the precompacted or loose thickness of lifts, the number of passes with the compactor required to obtain the desired results, the type of compacting tool used and the soil type.

8.12.8 All maintenance work shall be compacted in 6" lifts. Construction work shall, based on the specific compaction equipment used, utilize Table A to determine appropriate lifts. Construction work shall be defined as the installation of new or replacement facilities.

TABLE A

Tool	Thickness of Lifts
Pneumatic Air Tamper	6"
Percussive Wacker Rammer	6" – 12"
Vibratory Compactor (7000lb)	6" – 12"
Pavement Breaker Tamping Foot	6"

8.12.9 Well graded gravel that may exist immediately under the paved surface shall be replaced in like-compacted depth.

8.12.10 All leak detection holes (i.e., bar holes) shall be filled in lifts with an appropriate mineral filler and compacted to the bottom of the pavement.

8.13 Compaction Verification

8.13.1 Compaction verification shall be performed in accordance with the following to assure that 95% modified Proctor density has been achieved:

a. The compaction of each lift shall be verified using a Dynamic Cone Penetrometer (DCP), or equivalent as approved by the Municipality. For standard maintenance excavations, each lift shall be verified at one location. For longer excavations (e.g., trenches), a DCP test shall be made approximately every 25 feet for each lift.

b. A DCP test shall be considered acceptable if, after 15 drops, the pass/fail reference line on the DCP is above the soil surface.

c. An unacceptable DCP test shall require that corrective measures be taken until an acceptable DCP test is achieved. This may include making additional passes with the compactor or, in some cases, removing the backfill material and starting over.

8.14 Training

Field personnel performing backfill and compaction operations shall be trained in the implementation of this procedure. Personnel shall receive retraining every two years. The Utility shall certify with the submission of a Permit application that all personnel are properly trained.

9.0 Pavement Restoration

9.1 The Utility shall be responsible to replace all pavement disturbed by work under the Permit with homogeneous and in-kind pavement, unless otherwise stipulated, to the original strength and condition.

9.2 Single gradation (Type I, surface course) bituminous concrete patches may be used when the existing pavement depth is less than three inches, provided that the new patch is installed to a depth 1 inch greater than the surrounding pavement.

9.3 Single gradation (Type I, binder course) bituminous concrete may be used where post grind and inlay method is a condition of the Permit. Minimum allowable depth of pavement shall be four inches when utilizing the grind and inlay method. When the grind and inlay method is performed, the surface of the pavement shall be uniformly ground and removed to a minimum depth of 1.5 inches for subsequent pavement replacement The grinding procedure shall provide a cutback into existing undisturbed pavement and shall encompass all disturbed pavement areas of the excavation. Grinding shall be done in reasonably straight lines.

9.4 All non-emergency pavement excavations shall be repaired with same day permanent patches unless specifically exempted in the permit.

9.5 Same day patches installed in conformance with these standards will not require re-excavation and may utilize the infrared method or the grind and inlay method to correct subsequent settlements. However, the restoration of single patches up to five feet by seven feet in area shall be by the infrared method, unless another method is agreed to by the Municipality.

9.6 Immediately following the procedures outlined in the section for Backfill and Compaction, the adjacent pavement shall be cut back, full depth, to encompass all disturbed pavement areas and underlying cavities associated with the excavation. All cutbacks shall be done in reasonably straight and parallel lines.

9.7 All existing pavement surfaces shall be swept clean of dirt, dust, and debris prior to patching. The existing vertical pavement surfaces shall be tack coated with an appropriate asphalt tacking material prior to patching and subsequent to cleaning.

9.8 Pavement repair depths shall equal or exceed adjoining pavement depths. When existing pavement depths are greater than 2 inches, pavement repairs shall be made utilizing Type I, binder course in the underlying patch courses. The wearing surface shall be a minimum 1.5 inches of Type I, surface course. Pavement courses shall not exceed two inches. All pavement courses shall be thoroughly compacted prior to placement of subsequent courses.

9.9 When the pavement remaining between an excavation and the edge of the roadway is less than two feet, the remaining area shall be removed and replaced in conjunction with the permanent pavement repair.

9.10 All leak detection holes (i.e. bar holes) shall be filled to refusal with an appropriate asphalt filler to a depth equal to the surrounding pavement depth.

9.11 Temporary pavement repairs shall be permitted under the following conditions:

a. Emergency Repair Work completed outside normal Monday through Friday working hours. .
b. Work performed between December 1 and March 30 when bituminous concrete is not available on a daily basis.
c. Excavations which shall be reopened within five (5) working days.

9.12 The Utility shall make every effort to limit excavations conducted under the aforementioned conditions.

9.13 All excavation, back fill, and compaction work associated with temporary patches shall be performed in accordance with these standards.

9.14 Temporary patches shall be made with high-performance cold patch or Type I, bituminous concrete to a minimum depth of 4 inches. Temporary patches made between December 1 and March 30 shall be removed and replaced with a permanent patch as outlined above within five (5) working days. Temporary patches made between April 1 and November 30 shall be removed and replaced with a permanent patch as outlined above within two (2) working days.

9.15 The Utility shall be responsible to maintain temporary patches in a safe condition for all types of travel until a permanent pavement repair has been made.

9.16 The Municipality shall have jurisdiction to determine the pavement repair method to be utilized on all pavements which have been installed for less than five years.

9.17 Completed pavement repairs shall not deviate more than 0.25 inches from the existing street surface.

9.18 No less than thirty (30) days and no more than sixty (60) days from the completion of the permanent pavement repair, the Utility shall inspect the excavation for settlements, cracking and other pavement defects. Any such excavation which has required repair shall then be reinspected no less than thirty (30) days and no more than sixty (60) days from the completion of the subsequent repair. The Utility shall further inspect all excavations after a one-year time period. Pavements that deviate more than 0.25 inches from the existing street surface shall be repaired by the infrared or grind and inlay methods. Surface or joint cracking 0.25 inches wide or greater shall be repaired utilizing a modified asphalt pavement sealant.

9.19 The Utility shall prepare, document and maintain records of these inspections and make them available to the Municipality and the Department upon request.

9.20 All excavations made within concrete roadways shall be repaired with concrete in depths

equal to the existing concrete .

9.21 Concrete used for repairs shall conform to the requirements of Mass. Highway Standards for concrete roadway construction.

10.0 Sidewalks and Driveways

10.1 All work shall be performed in accordance with 521 CMR Rules and Regulations of the Architectural Access Board (AAB) and Americans with Disabilities Act (ADA).

10.2 A sidewalk area that is disturbed shall be restored, full width, in kind a minimum of one foot beyond the disturbed area for bituminous concrete and to the next joint line for concrete.

10.3 After the subgrade has been prepared, a foundation of gravel shall be placed upon it. After thorough mechanical compaction, the foundation shall be at least 8 inches thick and parallel to the proposed surface of the walk.

10.4 If applicable, the bituminous concrete sidewalk surface shall be laid in 2 courses to a depth after rolling of 3 inches. The bottom course shall be 1½ inches thick and its surface after rolling shall be 1½ inches below the parallel to the proposed grade of the finished surface. The top course shall be 1½ inches thick after rolling.

10.5 If applicable, the concrete sidewalk shall be placed in alternate slabs 30 feet in length. The slabs shall be separated by transverse preformed expansion joint filler ½ inch thick (shall conform to AASHTO- M153). Preformed expansion joint filler shall also be placed adjacent to or around existing structures.

10.6 On the foundation as specified above, the concrete (Air-Entrained 4000 psi, 3/4" 610) shall be placed in such quantity that after being thoroughly consolidated in place it shall be 4 inches in depth. At driveways, the sidewalk shall be 6 inches in depth.

10.7 Driveways shall be surfaced with Bituminous Concrete, Type I and shall be laid in two courses to a depth of three inches, after rolling, with a foundation of at least six inches of compacted gravel. The finished surface shall butt into and not overlap the existing highway grade at the road edge.

10.8 Driveways shall be so graded that no water shall enter the layout, pond or collect thereon, including the roadway.

11.0 Compliance with these Standards

11.1 Utilities shall file with the Department, by May 1 of each year, written statements or policies designed to insure that managers, supervisors and other distribution personnel are aware of, and held accountable to, these Standards.

11.2 Utilities shall track the success and failures of their programs to include the restorations and the inspections of such restorations. Utilities shall specify the number of failed restorations compared to the total number of restorations made during the preceding calendar year, the number of failures reported by a party other than a utility inspector and the age of the failed restoration.

11.3 Utilities shall record the number of failed restorations encountered during the inspections required in Section 9.19. They shall also document the cause of the failure and their policy changes to prevent the recurrence of a similar failure.

11.4 Utilities shall record the number of failed restorations and cost incurred when Municipalities perform the corrective action in accordance with Section 4.4.

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TOWN OF NEEDHAM
PUBLIC WORKS DEPARTMENT

470 Dedham Avenue, Needham, MA 02492
Call Judy at DPW @ (781) 455-7534 to extend permit dates.
Highway Division @ (781) 455-7548, Ext. 231

Needham, Mass._____ 20___

Permission is hereby granted to:_____

to OPEN ☐ OCCUPY ☐ OBSTRUCT ☐ _____

which is described as _____

for the purpose of _____

_____ from_____A.M._____ to _____P.M._____

The licensee hereby agrees: To conform to all requirements of State Laws and By-Laws of the Town and such requirements of the Director of Public Works, now or hereafter in force, relative to restoring the street to a satisfactory condition and to protecting the public by adequate lights and safeguards; and to indemnify and save harmless the Town of Needham from any and all loss, damage and expense sustained by reason of any act or omission by the licensee hereunder. NO ROAD PLATES during Nov. 15 - April 1.

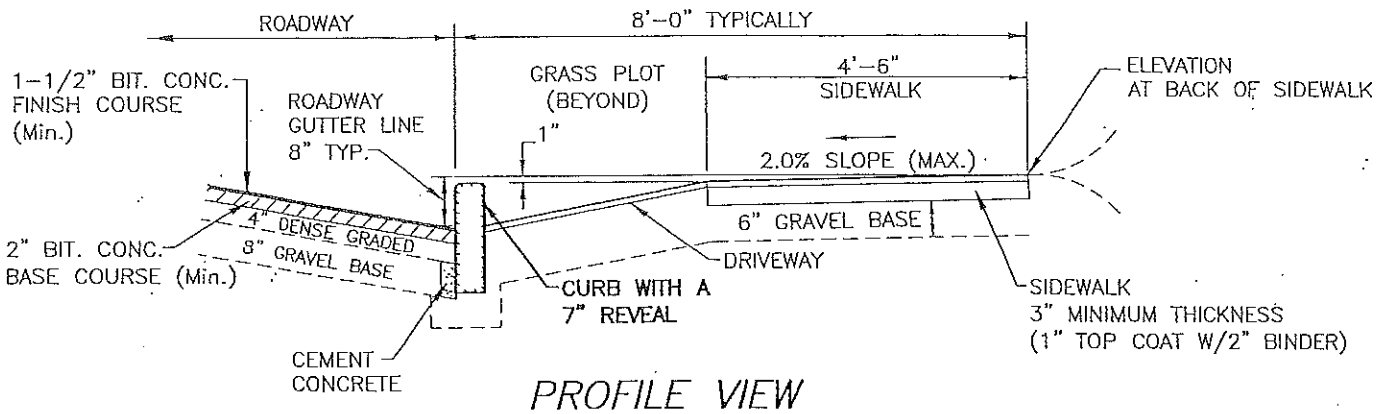
Accepted by _____ BOARD OF SELECTMEN

Title _____ By _____
Director of Public Works

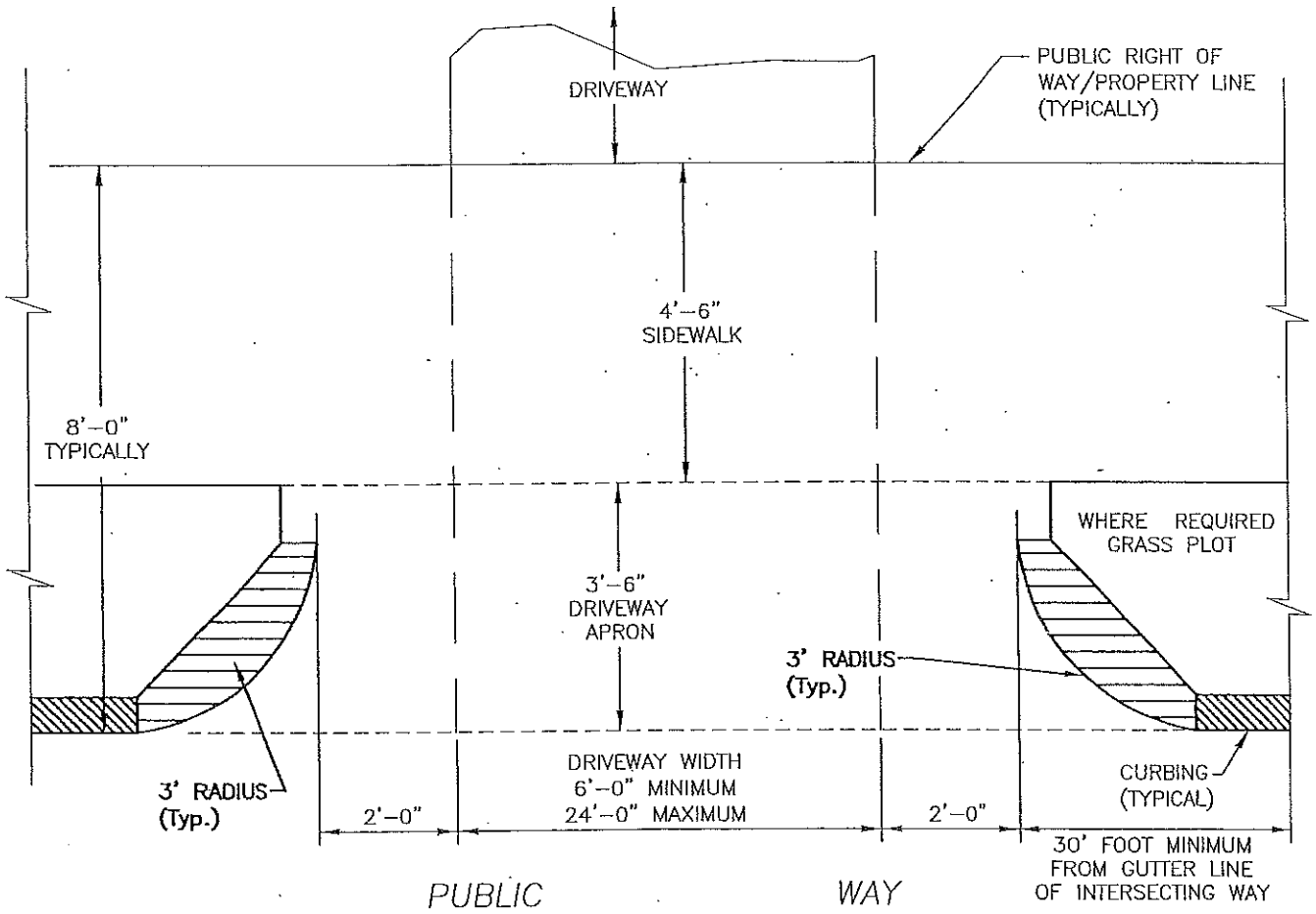
TYPICAL DRIVEWAY OPENING DETAIL

T:\Engineering\DPW Eng Branches\CAD-Drafting\Standard Approved Details\DrivewayOpening.dwg, Approved, 11/10/2010 10:28:50 AM, tsarno

(Driveway width 24 ft max, plus 2 ft roundings each side = Total Not To Exceed 28 ft)



PROFILE VIEW



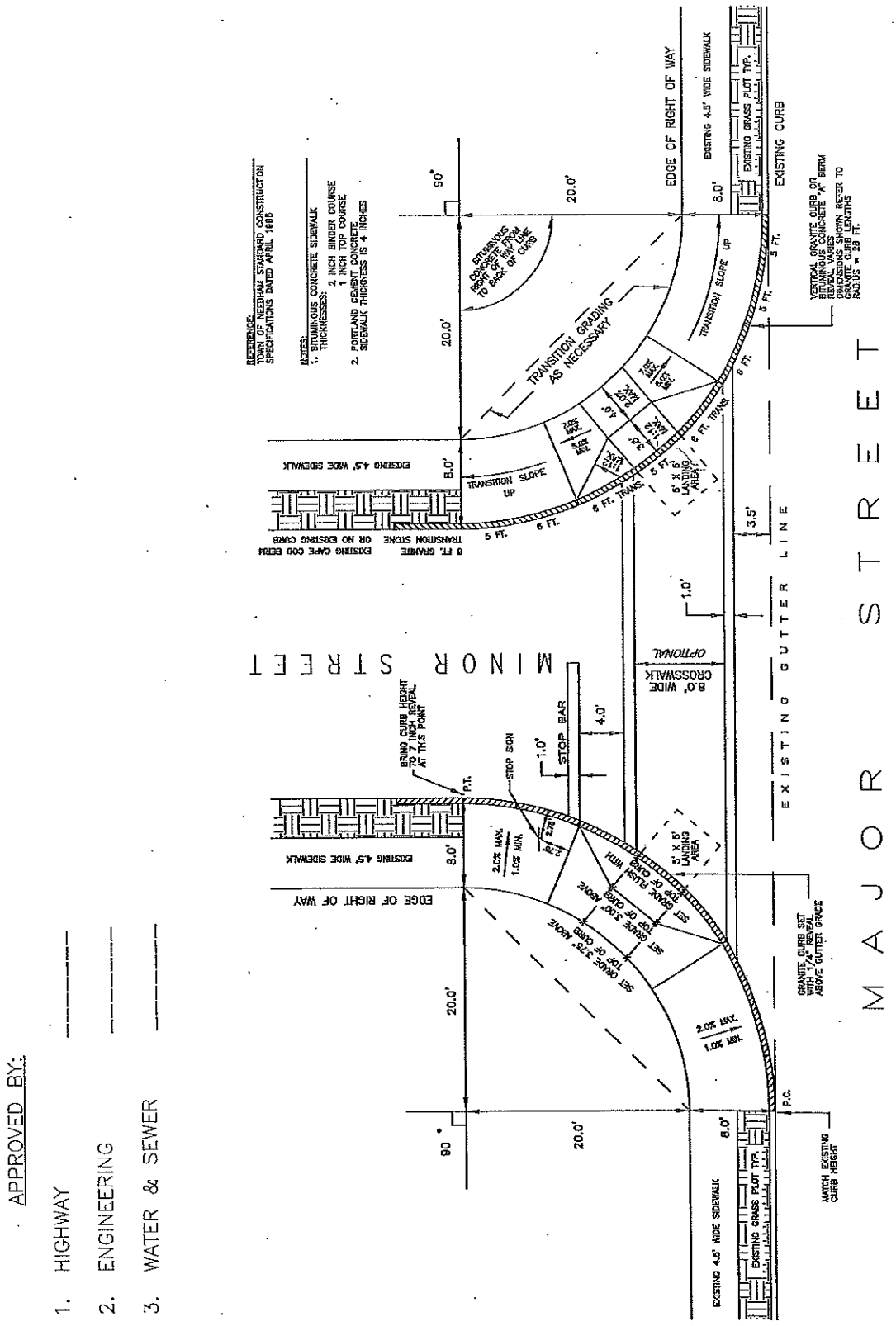
PLAN VIEW

NOTES:

1.) ALL CONSTRUCTION AND MATERIALS SPECIFICATIONS SHALL COMPLY WITH THE NEEDHAM DEPARTMENT OF PUBLIC WORKS STANDARD CONSTRUCTION SPECIFICATIONS, DATED APRIL 1995.

2.) GRANITE CURBING WHERE REQUIRED SHALL BE VERTICAL CURBING MWDP SPEC M9.04.0 AND MWDP SPEC M9.04.1 TYPE VA4 SPECIFICATIONS.

TYPICAL DRIVEWAY OPENING PLAN SCALE: NOT TO SCALE DATE: OCT. 29, 2010	*NEEDHAM DEPARTMENT OF PUBLIC WORKS* *ENGINEERING DIVISION*
Prepared for: DEPARTMENT OF PUBLIC WORKS	500 *Dedham Avenue, Needham, MA 02492* *(781) 455-7550*
Draft: TGS Check: TAR/ALD	Sheet 1 of 1 Dwg. No. DrivewayOpening



APPROVED BY:

1. HIGHWAY _____
2. ENGINEERING _____
3. WATER & SEWER _____

PROPOSED HANDICAP RAMP DESIGN

SCALE: NOT TO SCALE DATE: FEBRUARY 23, 2007

Prepared for: ENGINEERING DEPARTMENT
DEPARTMENT OF PUBLIC WORKS
NEEDHAM, MA 02492

NEEDHAM DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
470 Dedham Avenue, Needham, MA 02492
(781) 455-7538

Draft: TGS Check: DAM/ALD

Sheet 1 of 1 Dwg. No. XXXXXXXXXXXXXX

Summary of Excavation and Trench Safety Regulation (520 CMR 14.00 et seq.)

This summary was prepared by the Massachusetts Department of Public Safety pursuant to G.L.c.82A and does not include all requirements of the 520 CMR 14.00. To view the full regulation and G.L.c.82A, go to www/mass.gov/dps
Pursuant to M.G.L. c. 82, § 1, the Department of Public Safety, jointly with the Division of Occupational Safety, drafted regulations relative to trench safety. The regulation is codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. The regulation requires all excavators to obtain a permit prior to the excavation of a trench made for a construction-related purpose on public or private land or rights-of-way. All municipalities must establish a local permitting authority for the purpose of issuing permits for trenches within their municipality. Trenches on land owned or controlled by a public (state) agency requires a permit to be issued by that public agency unless otherwise designated.

In addition to the permitting requirements mandated by statute, the trench safety regulations require that all excavators, whether public or private, take specific precautions to protect the general public and prevent unauthorized access to unattended trenches. Accordingly, unattended trenches must be covered, barricaded or backfilled. Covers must be road plates at least ¾" thick or equivalent; barricades must be fences at least 6' high with no openings greater than 4" between vertical supports; backfilling must be sufficient to eliminate the trench. Alternatively, excavators may choose to attend trenches at all times, for instance by hiring a police detail, security guard or other attendant who will be present during times when the trench will be unattended by the excavator.

The regulations further provide that local permitting authorities, the Department of Public Safety, or the Division of Occupational Safety may order an immediate shutdown of a trench in the event of a death or serious injury; the failure to obtain a permit; or the failure to implement or effectively use adequate protections for the general public. The trench shall remain shutdown until re-inspected and authorized to re-open provided, however, that excavators shall have the right to appeal an immediate shutdown. Permitting authorities are further authorized to suspend or revoke a permit following a hearing. Excavators may also be subject to administrative fines issued by the Department of Public Safety for identified violations.

Summary of 1926 CFR Subpart P -OSHA Excavation Standard

This is a worker protection standard, and is designed to protect employees who are working inside a trench. This summary was prepared by the Massachusetts Division of Occupational Safety and not OSHA for informational purposes only and does not constitute an official interpretation by OSHA of their regulations, and may not include all aspects of the standard.
For further information or a full copy of the standard go to www.osha.gov.

- **Trench Definition per the OSHA standard:**
  - An excavation made below the surface of the ground, narrow in relation to its length.
  - In general, the depth is greater than the width, but the width of the trench is not greater than fifteen feet.
- **Protective Systems** to prevent soil wall collapse are always required in trenches deeper than 5', and are also required in trenches less than 5' deep when the competent person determines that a hazard exists. Protection options include:
  - Shoring. Shoring must be used in accordance with the OSHA Excavation standard appendices, the equipment manufacturer's tabulated data, or designed by a registered professional engineer.
  - Shielding (Trench Boxes). Trench boxes must be used in accordance with the equipment manufacturer's tabulated data, or a registered professional engineer.
  - Sloping or Benching. In Type C soils (what is most typically encountered) the excavation must extend horizontally 1 ½ feet for every foot of trench depth on both sides, 1 foot for Type B soils, and ¾ foot for Type A soils.
  - A registered professional engineer must design protective systems for all excavations greater than 20' in depth.
- **Ladders** must be used in trenches deeper than 4'.
  - Ladders must be inside the trench with workers at all times, and located within 25' of unobstructed lateral travel for every worker in the trench.
  - Ladders must extend 3' above the top of the trench so workers can safely get onto and off of the ladder.
- **Inspections** of every trench worksite are required:
  - Prior to the start of each shift, and again when there is a change in conditions such as a rainstorm.
  - Inspections must be conducted by the competent person (see below).
- **Competent Person(s) is:**
  - Capable (i.e., trained and knowledgeable) in identifying existing and predictable hazards in the trench, and other working conditions which may pose a hazard to workers, and
  - Authorized by management to take necessary corrective action to eliminate the hazards. Employees must be removed from hazardous areas until the hazard has been corrected.
- **Underground Utilities** must be:
  - Identified prior to opening the excavation (e.g., contact Digsafe).
  - Located by safe and acceptable means while excavating.
  - Protected, supported, or removed once exposed.
- **Spoils** must be kept back a minimum of 2' from the edge of the trench.
- **Surface Encumbrances** creating a hazard must be removed or supported to safeguard employees. Keep heavy equipment and heavy material as far back from the edge of the trench as possible.
- **Stability of Adjacent Structures:**
  - Where the stability of adjacent structures is endangered by creation of the trench, they must be underpinned, braced, or otherwise supported.
  - Sidewalks, pavements, etc. shall not be undermined unless a support system or other method of protection is provided.
- **Protection from water accumulation hazards:**
  - It is not allowable for employees to work in trenches with accumulated water. If water control such as pumping is used to prevent water accumulation, this must be monitored by the competent person.
  - If the trench interrupts natural drainage of surface water, ditches, dikes or other means must be used to prevent this water from entering the excavation.
- **Additional Requirements:**
  - For mobile equipment operated near the edge of the trench, a warning system such as barricades or stop logs must be used.
  - Employees are not permitted to work underneath loads. Operators may not remain in vehicles being loaded unless vehicles are equipped with adequate protection as per 1926.601(b)(6).
  - Employees must wear high-visibility clothing in traffic work zones.
  - Air monitoring must be conducted in trenches deeper than 4' if the potential for a hazardous atmosphere exists. If a hazardous atmosphere is found to exist (e.g., O_2 <19.5% or >23.5%, 20% LEL, specific chemical hazard), adequate protections shall be taken such as ventilation of the space.
  - Walkways are required where employees must cross over the trench. Walkways with guardrails must be provided for crossing over trenches > 6' deep.
  - Employees must be protected from loose rock or soil through protections such as scaling or protective barricades.

520 CMR 14.00: EXCAVATION AND TRENCH SAFETY

Table of Contents:

Section 14.01 Authority, Purpose, and Scope

(1) Purpose and Scope.
(a) 520 CMR 14.00 is promulgated by the Department of Public Safety in conjunction with the Division of Occupational Safety pursuant to authority granted by M.G.L. c. 82A § 1.
(b) The purpose of 520 CMR 14.00 is to establish reasonable standards to protect the safety of the citizens of the Commonwealth from the hazards inherent in trenches and to provide for penalties for individuals who violate any provision of this regulation.

(2) Applicability Provision.
(a) 520 CMR 14.00 shall apply to any excavator.
(b)This regulation shall not be construed or enforced in a manner that directly, substantially or specifically regulates the occupation, safety or health of any employee engaged in employment covered by the Federal Occupational Safety and Health Act.
(c) This regulation shall be read in conjunction with and shall not supersede, be construed or be enforced in a manner that contradicts 780 CMR, the Massachusetts State Building Code.

(3) Effective Date. The enforcement of 520 CMR 14.00 shall begin on January 1, 2009 in order to provide adequate time for excavators and permitting authorities to train their employees and implement the provisions contained within these regulations.

Section 14.02 Definitions

Competent Person- A person or persons who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to people, and who has authorization to take prompt corrective measures to eliminate them. A competent person must be able to demonstrate that he or she has been trained in and is knowledgeable about: soil analysis, the use of protections for the General Public and the requirements of this regulation.

Emergency- An unforeseen condition in which the safety of the public is in imminent danger because of a threat to life or health or where immediate correction is required to maintain or restore essential public utility service.

ii. The anticipated date to begin the trench operation;
iii. The anticipated date to conclude the trench operation;
iv. The name of the permit holder; and
v. The name of the competent person(s).

(d) When issuing a permit under this section, the permitting authority shall attach a summary of OSHA Regulation 1926 Subpart P-Excavations and a summary of any regulation promulgated by the Department of Public Safety in conjunction with the Division of Occupational Safety in accordance with M.G.L. c. 82A.

(3) Permit Requirements. In order to obtain a permit, the following information must be submitted to the permitting authority:

(a) Completed application;
(b) Certificate of insurance;
(c) Required fee in accordance with 520 CMR 14.03 (6) where applicable.

(4) Contents of Permit Applications. All permit applications must contain the following information:

(a) Digsafe number (see sample permit);
(b) Name and contact information of permit holder;
(c) Name and contact information of the excavator;
(d) Name of the competent person(s)
(e) Name of person(s) performing the excavation of the trench;
(f) Massachusetts Hoisting License number, license grade and expiration date of the person(s) performing the excavation of the trench;
(g) Permit expiration date (if applicable);
(h) Specific location of the trench;
(i) Name and contact information of insurer;
(j) All permit applications shall also include the following statements pursuant to M.G.L. c.82A, §3 (3) and (5) (i), (ii):
1. "Persons engaging in any trenching operation shall familiarize themselves with the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 *et. seq.*, entitled Subpart P Excavations."
2. "By applying for, accepting and signing this permit, the applicant attests to the following: (i) that he has read and understood the regulations promulgated by the Department of Public Safety with regard to trench safety; (ii) that he has read and understood the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 *et.seq.*, entitled Subpart P "Excavations".

(5) Posting. All Permits issued pursuant to this regulation shall be posted in plain view on the site of the trench. All permits shall be made available to the permitting authority, any investigator from the Division of Occupational Safety, any inspector of the Department of Public Safety, or any other lawfully authorized authority.

(6) Permit Fees. In accordance with Chapter 82A, § 2, the local permitting authority may charge a reasonable fee to cover the administrative costs incurred by the authority in connection with the review and processing of permits.

8. Barriers must be clearly marked on all sides with signs indicating "Danger – Do Not Enter", "Authorized Personnel Only" or equivalent warning.
9. Barriers shall be placed at a sufficient distance from the trench to be unaffected by changing conditions of the trench site.

(4) The provisions of this section may be substituted by continuous personal monitoring of the unattended trench by the permit holder or by person(s) under the control and direction of the permit holder.

(5) The provisions of this section may be substituted by backfilling the work site while unattended.

(6) The permitting authority may require any additional, site-specific provisions it deems necessary to protect the general public as a condition to any permit issued.

Section 14.05 Suspension and Revocation of Permits; Assessment of Fines; Immediate Shut-Down; Appeals

(1) Scope 520 CMR 14.05 establishes the suspension and revocation procedures for all permits, establishes the penalty structure for the assessment of administrative penalties and sets forth the procedure for immediate shut down of the site.

(2) Revocation and Suspension of Permit by Permitting Authority. The permitting authority may, after a hearing, suspend or revoke a permit issued pursuant 520 CMR 14.03. All hearings under this section shall be held in accordance with G.L. c. 30A and 801 CMR 1.02. Each permitting authority shall have the discretion to establish the grounds consistent with this regulation for a suspension or revocation however such suspension or revocation shall not be imposed in a manner which directly, substantially or specifically regulates the occupational safety or health of any employee engaged in employment covered by the Federal Occupational Safety and Health Act.

(3) Assessment of Fines by the Department of Public Safety
(a) Notwithstanding any action taken by a permitting authority pursuant to 520 CMR 14.05 (2), the Department of Public Safety may assess administrative fines against the excavator in accordance with M.G.L. c. 82A § 1.
(b) Penalty Structure. Whenever the Department of Public Safety finds upon inspection, investigation or other information in its possession, that a violation of any provision of 520 CMR 14.00 has occurred, the Department may assess an administrative penalty not to exceed $5,000.00 for each violation. Each day during which a violation exists shall constitute a separate offense.
(c) Factors in determining amount of penalty. In determining the amount of the administrative penalty, the Department of Public Safety may consider one or more of the following:
1. The willfulness of the violation;
2. Previous violations resulting in the imposition of administrative penalties as set forth in the rules of the Department of Public Safety;
3. Whether the violation resulted in an accident involving bodily injury or death to a member of the general public;
4. The actual or potential danger to the public;
5. Whether the excavator did everything reasonable to attempt to comply with the regulation;
6. Actions, if any, taken by the permitting authority;
7. Whether imposition of the administrative penalty is likely to deter future noncompliance; and

(8) Serious Injury/Fatality; Notification; investigation.
(a) Notification. An excavator shall report all serious injuries or fatalities which occur at the location of a trench to the State Police within one hour from the time the serious injury occurred.
(b) Investigation. In the event that a serious injury or fatality occurs, the trench site shall be immediately secured. The site surrounding the trench shall not be disturbed, cleaned, or altered in any way except by a public authority or as necessary for the preservation of life and property or the removal of the injured person(s) until receiving express authorization from an inspector of the Department of Public Safety.

REGULATORY AUTHORITY

M.G.L. c. 82A, §§1-5.